THE MINERAL INDUSTRY OF BURMA

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Burma is located in Southeast Asia and is bordered by the countries of Bangladesh, China, India, Laos and Thailand, the Andaman Sea, and the Bay of Bengal. This country has an area of 678,500 square kilometers (km²) and had an estimated population of 42.7 million in 2004 (U.S. Central Intelligence Agency, 2004§[1], 2005§; U.S. Department of State, 2005§).

In 2004, Burma's gross domestic product (GDP) based on purchasing power parity was estimated to be $74.1 billion, and the GDP per capita based on purchasing power parity was estimated to be $1,700. Burma's economy was based primarily on agriculture, which included fisheries, forestry, livestock, rice, and sugarcane; agriculture accounted for nearly 57% of the GDP in 2004. Other sectors that contributed to Burma's economy were industry and services, which accounted for almost 9% and 35%, respectively, of the GDP (International Monetary Fund, 2005§; U.S. Central Intelligence Agency, 2005§). The country's mineral resources include antimony, coal, copper, gemstone, lead, limestone, marble, natural gas, petroleum, precious stones, tin, tungsten, and zinc.

U. S. relations with Burma have been strained since 1988 when leaders of a military coup suppressed pro-democracy demonstrations and later established a military junta in place of the Government. In 2003, the U.S. Congress passed the Burma Freedom and Democracy Act (BFDA), which was signed into law by the President. The Act banned the import of Burmese products into the United States and the export of financial services from the United States to Burma, which impeded Burma's ability to obtain foreign exchange; the Act also extended visa restrictions on Burmese officials. In July 2004, U.S. Congress renewed the BFDA (U.S. Department of State, 2005§).

Trade

Burma's export market totaled about $2.1 billion during 2004, which was a decrease of about 19%; imports totaled about $1.8 billion, which was a decrease of about 25%. Exports included such commodities as clothing, fish, natural gas, and rice; import goods included construction materials, transport equipment and machinery, crude oil, petroleum products, and plastics. During 2004, Burma's main export partners included Thailand (37%), India (14%), China (6.2%), Japan (5.1%), the United Kingdom (4%), and others (33.7%), and import partners included China (28.3%), Singapore (20.6%), Thailand (19.1%), the Republic of Korea (6.2%), Malaysia (4.7%), and others (21.1%) (U.S. Central Intelligence Agency, 2005§).

During the first quarter of 2004, the Confederation of Indian Industries and the Union of Myanmar Federation of Chambers of Commerce and Industries signed a memorandum of understanding (MOU) to create a task force to increase trade between Burma and India. By 2006, India expects to increase the Burma-India trade volume to $1 billion, which will be an estimated 134% increase compared with 2003 trade value of $428 million between the two countries. Several infrastructural developments were required at the main trade points located at Moreh-Tamu and Zowktahthar Rhi, the northeastern border of Burma and India. Development and improvements included airports, banking and finance, power, railways, roads, and telecommunications (BurmaNet News, 2004§; Confederation of Indian Industry, 2004§).

Commodity Review

Metals

Copper.— During 2004, the copper mine production in Burma reached 31,756 metric tons (t), which was an approximate increase of 14% and 15% compared with that of 2003 and 2002, respectively (table 1).

The Monywa Copper Project, which is located in west-central Burma approximately 110 kilometers (km) west of Mandalay, 15 km west of Monywa, and 832 km north of Yangon, comprises the following deposits: Kyisintaung, Letpadaung, Sebetaung, and Sebetaung South. The first phase of the Monywa Copper Project was developed as the S&K Mine, which covered an area of 30.59 km² and encompassed the Kyisintaung, the Sebetaung, and the Sebetaung South deposits.

The Monywa Copper Project was a 50-50 joint venture of Ivanhoe Myanmar Holdings Ltd. (IMHL) (a wholly owned subsidiary of Ivanhoe Mines Ltd. of Canada) and state-owned Mining Enterprise No. 1 (ME1). In 2004, Ivanhoe's share of net income from the Monywa joint venture totaled $22.1 million; profits in 2003 totaled $2.1 million. The increase in profits was a result of higher average copper prices per pound, the increase in copper production, and improved ore grades (Ivanhoe Mines Ltd., 2005a, p. 14).

The S&K Mine, which was the only operating copper mine in Burma in 2004, expected to increase production to 38,000 t in 2005. By 2006, IMHL expected to boost annual copper production to 50,000 t by upgrading the mine's power supply to 40 megawatts; the expansion will be subject to improvements in the national power system by the Government of Burma. Ivanhoe initiated a proposal to develop the second phase of the Monywa Copper Project during a period of 4 years that will involve the Letpadaung deposit, which covers an area of 32.69 km² and is located 7 km southeast of the S&K Mine site. The development of Monywa's second phase will involve the construction of three heap-leach solvent extraction-electrowinning (SX/EW) modules, each with a capacity of 50,000 metric tons per year (t/yr) of copper cathode. Tests carried out in the Letpadaung deposit in preparation for mining yielded possible resources of 1.067 billion metric tons grading 0.39% copper. Commercial mining in the Letpadaung deposit was scheduled to start in

[1]References that include a section mark (§) are found in the Internet References Cited section.

2007; the mine had an estimated life of 20 years. Expansions in the S&K Mine and the Lepadaung deposit will increase capacity to around 200,000 t/yr within 4 years; 50,000 to 80,000 t/yr will be from the S&K Mine and 125,000 to 150,000 t/yr, from the Letpadaung deposit (CRU International Limited, 2004; Ivanhoe Mines Ltd., 2005a, p. 14, 20; 2005b, p. 11, 40, 48).

A drilling program was initiated during mid-2004 to explore a potentially significant high-grade copper deposit discovered during mining at the bottom of the Sabetaung deposit. The drilling intercepted long intervals of high-grade chalcocite mineralization; based on the mineralization dimension and grade, it was estimated to host a potential tonnage that ranged from 240,000 t grading 18.7% copper to 875,000 t grading 6.6% copper. A more-detailed drilling program was planned to confirm initial findings (Ivanhoe Mines Ltd., 2004).

Gold.—The Canadian joint-venture partners Jet Gold Corp. and Leeward Capital Corp. signed a concession agreement with the Department of Geological Survey and Mineral Exploration (GSME) to develop the 700-km² Set Ga Done gold property in Mabein Township, which is located 200 km northeast of Mandalay in northern Shan State and 90 km from the border of Yunnan Province in China. The Government of Burma approved the Set Ga Done concession agreement in December 2003 and granted it to Leeward in January 2004. The agreement made Leeward the main operator of the gold project with an ownership distribution of 75% to Leeward and 25% to the GSME. Leeward divided its 75% of the project ownership with Jet Gold on a 50-50 basis (Leeward Capital Corp, 2004a, 2005§).

The regional geology of the Set Ga Done property consists of a northeast-trending ophiolite sequence overlain by Cretaceous and Tertiary sedimentary rock units and Quaternary alluvium. The Set Ga Done zone is hosted by fractured Triassic volcanic rock units, which are overlain by a Lower Cretaceous carbonate formation (Leeward Capital Corp., 2004a, 2005§).

Exploration in early 2004 revealed the existence of a gold zone trending northeast toward a Cretaceous limestone ridge, which was interpreted as a possible feeder to a more-extensive gold mineralization located underneath the limestone ridge; it has been classified as a "Carlin-type" gold mineralization. Previous drillings in the Triassic volcanic area revealed a section that measures 4.77 meters (m) at a grade of 9.8 grams per metric ton (g/t) gold (Leeward Capital Corp., 2004c, 2005§).

The Carlin-type gold mineralization is characteristic of the gold deposits found in the United States in northern Nevada and northwestern Utah; grades in these gold deposits range from 0.6 to 29 g/t (Jet Gold Corp., 2004b).

The exploration program for the Set Ga Done property consisted of two phases. The first phase included a 1,500-m diamond drilling session and exploration across the previously delineated Nga Mu Gyi gold zone and in several other gold anomaly areas; all sites are located within the concession property. The initial phase budget of $200,000 was provided by Jet Gold. The second phase of exploration ($650,000 of expenditures) consisted of 4,000 m of drilling, which was planned to begin in early 2005. In addition to the two-phase exploration program, geologic mapping and geochemical sampling were also scheduled (Leeward Capital Corp., 2004a - c; 2005§).

The principal gold deposit in the Set Ga Done zone dips vertically and exceeds 700 m in length and 15 m in width. Preliminary results from the first-phase drilling revealed an increase in size of the Nga Mu Gyi gold zone from the initial estimate of 50 m in length to an area of 300 m by 500 m (Jet Gold Corp., 2004a). Soil sampling performed at Nga Mu Gyi indicated anomalous gold-in-soil values that range from 146 to 700 parts per billion (Jet Gold Corp., 2004b). Surface soil sampling from the northwest and south of the Set Ga Done property discovered gold concentrations that range from 4 to 40 g/t (Jet Gold Corp., 2004c). During 2005, geologic and geochemical surveys, which will include additional surface sampling and continued diamond drilling, will continue at the Set Da Gone concession.

During 2004, IMHL continued an exploration program that included trenching and diamond drilling in Block 10, which is located in central Burma. The exploration focused on a series of narrow high-grade mesothermal quartz-gold veins found in the Modi Taung Gold Project at an elevation of 1,300 m. Modi Taung is located within Block 10 approximately 150 km southeast of Mandalay and 373 km south of the Set Ga Done gold property in Nankwe District. In August 2004, Ivanhoe submitted a joint-venture proposal to the Myanmar Ministry of Mines for the development and mining of the Modi Taung region. The Ivanhoe (75%) and Ministry (25%) joint-venture proposal was under consideration by the Myanmar Investment Commission. Ivanhoe held an exploration permit for Block 10 that will expire in August 2005 (Ivanhoe Mines Ltd., 2005b, p. 62).

Nickel.—In July 2004, China Non-Ferrous Metal Mining & Construction Co. Ltd. (CNMC) and Burma's Mining Enterprise No. 3 (ME3) signed an agreement for preliminary surveys, mineral exploration, and a feasibility study for the Tagaung Taung nickel project. The project is located in northern Thabeikkyin Township, Mandalay Division, 120 km from the southeastern of the border town of Liangjiang in Yunnan Province (China), and a few kilometers from Ayeyarwady River (Burma), which is a potential water source for the open pit mining project. The Tagaung Taung site hosts one of the two identified nickel deposits in Burma; the other deposit is Mwe Taung, which is located near Tiddim, northern Chin State.

CNMC received approval from the Government of Burma to invest $500 million in nickel mining operations in a 40-km² section of the nickel project. Part of the investment will be for the construction of an onsite 30,000-t/yr nickel production plant. Preliminary studies revealed potential reserves of 800,000 t with an average nickel content of 2%. This project will constitute Burma's first nickel production facility (Mines and Communities, 2004§).

Zinc.—Burma's reported zinc production has been in an almost continuous decline since 2001. In 2004, production was 196 t, which was about a 54% increase compared with the 127 t produced in 2003 (table 1).

The Longh Keng Zinc Project, which consisted of a mine and a processing plant, is located in central Burma and had an estimated reserve of 175,000 t of smithsonite with an average grade of 36.9% zinc, which, if confirmed, will make it one of the highest grade zinc mines in the world. CSA Australia Pty. Ltd., which had been conducting exploration in the site, received approval from the Government of Burma to develop the zinc mine. The company planned to mine an average of 35,000 t/yr of high-grade zinc carbonate ore. CSA will build a plant to process the ore into zinc metal (CSA Australia Pty. Ltd., 2003§, 2004§).

Natural Gas.—Burma's recoverable onshore and offshore gas reserves were estimated to be 87 trillion cubic feet (2.46 trillion cubic meters). The natural gas marketed in Burma during 2004 was 10,277 million cubic meters; this was an increase of 4.9% and 9.9% compared with the 2003 and 2002 production, respectively (table 1).

In early 2004, the Korean companies Daewoo International Corp. and Korea Gas Corp. announced the discovery of an estimated 4 trillion to 6 trillion cubic feet (113 billion to 170 billion cubic meters) of recoverable gas on Block A1, which is located in the Rakhine basin shelf in the Bay of Bengal in northwestern Burma. On the basis of the results from an exploration well within Block A1, which is called Shwe-1A zone, a production of more than 100 million cubic feet (2.8 million cubic meters) per day was expected. By the end of 2005, research on the gas reserve in Block A1 was expected to conclude, and gas production was expected to begin in 2009. Block A1 was owned by an Indo-Korean consortium that comprised Daewoo International Corp. (60%), Oil and Natural Gas Corporation (ONGC) Videsh Ltd. (OVL) (20%), and Gas Authority of India Ltd. (GAIL) and Korea Gas (10% each) (Bamber, 2004, p. 15; Petzet, 2004).

In early 2004, in addition to its participation in Block A1, Daewoo also received a 100% stake to develop natural gas in Block A3. The exploration stage was to be conducted under an agreement between Daewoo and the Myanmar Ministry of Energy. In October 2004, Daewoo signed an MOU to sell 30% of its stake in Block A3 to OVL (20%) and GAIL (10%); Daewoo held the remaining 70%. Block A3 is located on the southern edge of Block A1 in the Bay of Bengal and measures approximately 6,780 km². Two-dimensional seismic and pre drilling surveys of Block A3 to estimate potential reserves for oil and gas will be conducted before offshore drilling starts in 2006 (Alexander's Gas & Oil Connections, 2004a§; McGraw-Hill Companies Platts, 2004§).

The Government of Burma and Daewoo were considering an investment of $3 billion in a liquefied natural gas (LNG) plant to facilitate the supply of the commodity to India and the Republic of Korea if at least 8 trillion cubic feet (227 billion cubic meters) of natural gas reserves was discovered in Block A1 (Alexander's Gas & Oil Connections, 2004b§; Schlumberger, 2004§). In the event of finding enough amounts of natural gas in Blocks A1 and A3, GAIL and OVL were also considering the possibility of an LNG plant to process the natural gas before exporting it, in its liquefied form, to India. The Government of Burma and the Indo-Korean consortium also explored other gas supply options—an onshore pipeline from Burma to India via Bangladesh, a pipeline via northeast India that bypassed Bangladesh, an offshore pipeline in international waters, or a pipeline through shallow waters off Bangladesh. In any case, Burma would be entitled to about 60% of the gas produced in Burma's blocks; the remaining percentage would be shared by the exploration partners in proportion to their equity holdings (McGraw-Hill Companies Platts, 2004§).

Burma also produced natural gas from two other reserves in the Gulf of Martaban—Yadana (an area of 26,140 km²) and Yetagun (an area of 24,130 km²). The Yadana gasfield, which began production in 1998, produced 700 million cubic feet (19.8 million cubic meters) per day, from which 650 million cubic feet (18.4 million cubic meters) per day are transported to Thailand and 50 million cubic feet (1.4 million cubic meters) per day to onshore Burma. The reserve in this gasfield was estimated to be 5 trillion cubic feet (142 billion cubic meters). The main operator at Yadana was France-based Total E&P Myanmar (31.24%); other partners included Unocal Myanmar (28.26%), Thailand- based PTT Exploration and Production Public Company Limited International Limited (PTTEP) (25.5%), and Myanmar Oil and Gas Enterprise (MOGE) (15%). The natural gas was transported to the Burma-Thailand border via a 409-km gas pipeline (Total S.A., 2005, p. 27; Alexander's Gas & Oil Connections, 2004d§; Asean Centre for Energy, 2004§; PTT Exploration and Production Public Company Limited, 2005a§).

The Yetagun gasfield, which began production in 2000, produced 450 million cubic feet (12.7 million cubic meters) per day of gas and exported about 300 million cubic feet (8.50 million cubic meters) per day. The main operator in the Yetagun gasfield was Petronas Carigali Myanmar Inc. (40.91%); other partners included MOGE (20.45%), and PTTEP and Nippon Oil Exploration (Myanmar) Limited (19.32% each). The natural gas was transported to the Burma-Thailand border via 277 km of gas pipeline (Alexander's Gas & Oil Connections, 2004d§; Asean Centre for Energy, 2004§; PTT Exploration and Production Public Company Limited, 2005b§).

In August 2004, the Government of Burma had granted PTTEP the right to survey for gas and oil in two areas near the Yadana deposit. The agreement allowed PTTEP to survey for natural gas and petroleum reserves in M3 and M4, which have a combined area of about 18,000 km². PTTEP, which owned 100% of the shares, planned to invest $23 million in the project during the next 6 years. In addition, the company signed a production-sharing contract (PCS) with MOGE to invest in offshore petroleum exploration for Blocks M3 and M4 (Alexander's Gas & Oil Connections, 2004e§; Asean Centre for Energy, 2004§; Democratic Voice of Burma, 2004§).

Petroleum.—According to Government statistics, Burma has 19 onshore and 3 main offshore oilfields and gasfields. Reserves have been estimated to be 3.2 billion barrels of recoverable crude oil. In 2004, Burma produced 7.160 million barrels of crude oil, while the production in 2003 was 7.204 million barrels; this was a decrease of 0.6% compared with 2003, and an increase of 12% compared with 2002 production (table 1).

In September 2004, MOGE under Burma's Ministry of Energy, the Dian-Qian-Gui Petroleum Exploration Bureau of China, and China Petroleum & Chemical Corporation (SINOPEC) agreed on an oil PSC. The agreement was a joint collaboration between the two countries to explore for gas and oil onshore Block D (an area of 12,000 km²), which is located in the Monywa District, Sagaing Division (China Internet Information Center, 2004§; Myanmar Ministry of Foreign Affairs, 2004§).

At yearend 2004, a consortium that included Chinese and Singaporean companies signed two PSCs with Burma for offshore oil and natural gas exploration. The companies involved in the contract were China National Offshore Oil Company (CNOOC), Myanmar Ltd. of China, China Huanqiu Contracting and Engineering, Golden Aaron Pte. of Singapore, and MOGE. In the contract, the companies agreed on oil and gas exploration in two areas—Block A4, which is located in western Rakhine State and covers an area of 10,000 km², and Block M10, which is located in the Gulf of Mottama (southern Tanintharyi Division) and covers an area of

15,534 km². A similar agreement, which involved the same consortium partners, to explore for oil and gas in the onshore Block M (an area of 7,760 km² that is located in the area of Kyaukpyu, Rakhine State) was signed in October 2004 (Alexander's Gas & Oil Connections, 2004c§).

Outlook

Burma's economy is expected to grow in 2005 and 2006 at a rate of 6% and 5%, respectively, on the basis of GDP at purchasing power parity. By 2006, trade between Burma and India is expected to increase by 134% following an MOU signed in 2004. Production in the mining sector will likely follow the trend in recent years and continue to be dominated by the copper, natural gas, and petroleum industries.

Exploration activity in Burma will have a tendency to continue to increase mainly as the result of the many exploration projects that started in 2004; these included two gold deposits, Modi Taung and Set Ga Done, and the developments that involve natural gas and petroleum, both onshore and offshore. Preliminary exploration that shows high-grade discoveries of nickel and zinc could also open Burma's doors to new markets within the next few years. Burma could become a leading mineral producer in Asia if ongoing explorations are proven to be feasible and profitable to develop.

Expansion and development plans in the S&K Mine and the Lepadaung deposit will increase annual copper production capacities within the next 4 years. The S&K Mine is expected to achieve production of from 50,000 to 80,000 t/yr, and Letpadaung, to reach copper production of from 125,000 to 150,000 t/yr. In addition, the discovery of a potentially significant high-grade copper zone in the Sabetaung area could increase the production of copper even more and transform the Monywa Copper Project into the leading SX-EW copper producer in Asia.

The development of interregional gas pipelines, increases in natural gas consumption in Asia and the Pacific region, and the discovery of new gasfields in Burma are circumstances that will place Burma as a key producer in the region. Also, recent gas discoveries in Burma could increase gas exports to Thailand, which is Burma's main natural gas importer.

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TABLE 1
BURMA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2000	2001	2002	2003	2004
METALS						
Chromium, chromite, gross weight[e]		3,000	3,000	3,000	3,000	3,000
Copper:						
Mine output, Cu content		26,711	25,800	27,500	27,870	31,756
Matte, gross weight[e, 3]		125 [4]	60	100	100	150
Metal, refined		26,711	25,800	27,500	27,870	31,756
Gold, mine output, Au content[e, 3]	kilograms	250	200	200	100	100
Iron and steel:[e, 3]						
Pig iron		1,500	1,500	1,500	1,500	1,500
Direct-reduced iron		40,000	40,000	40,000	40,000	40,000
Steel, crude		25,000	25,000	25,000	25,000	25,000
Lead:						
Mine output, Pb content[e, 4]		1,200 [3]	900 [3]	900	500	500
Metal:						
Refined		1,054	1,105	425 [r, 3]	888 [r]	289
Antimonial lead (93% Pb)[e, 3]		117 [4]	--	--	--	--
Manganese, mine output, Mn content[e]		50	50	50	50	50
Nickel:[e]						
Mine output, Ni content		10	10	10	10	10
Speiss (matte), gross weight[3]		60 [4]	40	40	40	40
Silver, mine output, Ag content[4]	kilograms	2,457	1,804	778 [r, 3]	778 [r]	1,120
Tin, mine output, Sn content:[4]						
Of tin concentrate		475 [r, 3]	503 [r, 3]	302 [r, 3]	434 [r]	330
Of tin-tungsten concentrate		269 [r, 3]	156 [r, 3]	154 [r, 3]	172 [r]	196
Total		744 [r]	659 [r]	456 [r]	606 [r]	526
Metal, refined[e]		30	30	30	30	30
Tungsten, mine output, W content:[4]						
Of tungsten concentrate		1	1	1 [r, 3]	3 [r]	1
Of tin-tungsten concentrate		145 [r, 3]	85 [r, 3]	83 [r, 3]	93 [r]	106
Total		146 [r]	86 [r]	84 [r]	96 [r]	107
Zinc, mine output, Zn content[4]		437	467	138 [r, 3]	127 [r]	196
INDUSTRIAL MINERALS						
Barite		30,370	31,015	15,050 [r, 3]	4,850 [r]	2,224
Cement, hydraulic		393,355	377,961	470,858 [r, 3]	571,505 [r]	518,999
Clays:						
Bentonite[3]		978	634 [r]	600 [r, e]	600 [r, e]	500 [e]
Fire clay and fire clay powder[e, 3]		331 [4]	300	300	300	300
Feldspar[e, 3]		12,000	10,000	10,000	10,000	10,000
Gypsum		48,067	64,609	90,002 [r, 3]	66,069 [r]	71,155
Nitrogen, N content of ammonia		78,000	28,000	21,000	62,500	34,800 [e]
Precious and semiprecious stones:						
Jade	kilograms	8,318,261	8,173,936 [r, 3]	10,878,789 [r, 3]	10,692,780 [r]	12,407,576
Diamond[e]	carats	5	5	5	5	5
Rubies, sapphires, spinel[3]	do.	8,350,695	8,630,000	4,579,624 [r]	4,378,545 [r]	6,198,913
Salt[e, 5]	thousand metric tons	35	35	35	35	35
Stone:						
Dolomite		166	4,922	3,806 [r, 3]	4,572 [r]	4,184
Limestone, crushed and broken[e]	thousand metric tons	2,400	2,600	3,200	3,500 [r]	3,300
MINERAL FUELS AND RELATED MATERIALS						
Coal, lignite		52,811	41,736	115,175 [r, 3]	109,214 [r]	237,949
Gas, natural:						
Gross[e]	million cubic meters	9,400 [3]	9,700	9,400	9,400	9,400
Marketed	do.	8,477 [3]	8,804	9,353 [r, 3]	9,799 [r]	10,277

See footnotes at end of table.

TABLE 1--Continued
BURMA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2000	2001	2002	2003	2004
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum:						
Crude	thousand 42-gallon barrels	3,538	4,696	6,387 [r, 3]	7,204 [r]	7,160
Refinery products[6]	do.	5,536	5,286	6,028 [r, 3]	5,835 [r]	5,133

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. -- Zero.

[1]Table includes data available through September 21, 2005.

[2]In addition to the commodities listed, construction aggregates, sand and gravel, and silica sand are produced, but available information is inadequate to make reliable estimates of output levels.

[3]Data are for fiscal year ending March 31 of the following year.

[4]Data are for the production by the state-owned mining enterprises under the Ministry of Mines.

[5]Brine salt production, in metric tons, reported by the Government was 2000--69,245; 2001--61,466; 2002--59,825 (revised); 2003--73,112 (revised); and 2004--58,395.

[6]Includes diesel, distillate fuel oil, gasoline, jet fuel, kerosene, and residual fuel oil.

Sources: International Fertilizer Industry Association, Ammonia Statistics 2004; Ministry of Mines and Central Statistical Organization (Yangon), Statistical Yearbook 2001; Selected Monthly Economic Indicators, November 2004; World Bureau of Metal Statistics, May 2005.

TABLE 2
BURMA: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement	Union of Myanmar Economic Holding Limited	Sinmin Cement plant	146,000
Coal	No. 3 Mining Enterprise	Kalewa Coal Mine in Sagaing Division, near Kalewa	13,000
Copper	Ivanhoe Myanmar Holdings Ltd. (50%), and Mining Enterprise No.1 (50%)	Monywa Copper Project, S&K mine, central Burma	39,000
Fertilizer, N content	Myanma Petrochemical Enterprise, 100% state-owned	No. 1 Fertilizer plant at Sales, 190 km, southwest of Mandalay	94,900
Do.	do.	No. 2 Fertilizer plant at Kyun Chaung, central Burma	75,555
Do.	do.	No. 3 Fertilizer plant at Kyaw Zwar, central Burma	219,000
Natural gas million cubic meters	Total E&P Myanmar (31.24%), Unocal Myanmar (28.26%), PTTEP International Limited (25.5%), Myanma Oil & Gas Enterprise (MOGE)(15%)	Yadana Gasfield in Moattama, Gulf of Martaban	7,227
Do. do.	Petronas Carigali Myanmar Inc. (40.91%), Myanma Oil & Gas Enterprise (MOGE) (20.45%), PTTEP International Limited (19.32%), and Nippon Oil Exploration (Myanmar) Limited (19.32%)	Yetagun Gasfield in Tanintharyi, Gulf of Martaban	4,635
Do. do.	Myanmar Petroleum Resources Limited and Myanma Oil & Gas Enterprise (MOGE)	Mann Oilfield, south of Yangon	37
Petroleum, crude thousand 42-gallon barrels	do.	do.	876
Petroleum, refined do.	Myanma Petrochemical Enterprise, 100% state-owned	No. 1 Refinery at Thanlyin (near Yangon)	9,490
Do. do.	do.	No. 2 Refinery at Chauk, central Burma	2,190
Do. do.	do.	No. 3 Refinery at Thanbayakan, central Burma	9,125
Steel	Myanmar POSCO Steel Co. Ltd. (70%)	POSCO steel plant in Yangon	30,000